

**STATEMENT OF BASIS**

Low Level Radioactive Waste Disposal Facility

EnergySolutions, LLC  
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November, 2013

On May 16, 2013, EnergySolutions (ES) submitted a “Request for Administrative Corrections to Radioactive Material License #UT2300249, conditions 32.E and 76” (CD13-0144). Originally, the Licensee had requested a change to license condition 32.E in a letter dated October 24, 2012 (CD12-0275). However at that time, the Division of Radiation Control (DRC) did not make the minor change to Condition 32.E in identifying the Corporate Radiation Safety Officer (CRSO) versus the Radiation Safety Officer in License Amendment #15.

On August 22, 2013, ES submitted a request to modify License Conditions 22, 31, 39.E, and 77 (CD13-0238). The DRC reviewed the request and proposed alternate versions of the requested changes to an ES representative in a meeting on September 4, 2013. On September 19, 2013 (CD13-0255), ES submitted additional revisions to the initial request. The DRC has reviewed the additional revisions and determined they are satisfactory and will be adequate to meet occupational and public safety requirements.

In addition, the Director has reviewed and is proposing a revision to the language in License Condition 43, based on correspondence regarding the 2013 Annual Surety review. Specifically, condition 43 is under the License heading “Construction Activities” and the language involves surety information. Therefore, for consistency, Condition 43 has been revised and new language has been added to License Condition 73.A. Added language in License Condition 73.A, is for clarity purposes regarding information that is required to be submitted as part of the annual report.

The Director has determined the changes to Condition 4, 31, 32.E, 43, 73.A.iii, and iv, 73.B, and 76 are minor, administrative in nature, provides more explicit language, does not include monitoring, or sampling, and is an increase in contingency costs effecting Surety. Changes to Conditions 22, 39.E, and 77, are determined to be a reduction in monitoring, therefore are considered major in accordance with R313-17-2, and thus a public comment period is required. Below is a summary of the proposed changes:

**License Change Summary**

<b>License Condition</b>	<b>Minor/Major Change</b>	<b>Description of Proposed Changes</b>
4	Minor	After the expiration date adding the Phrase “Under Timely Renewal”
22	Major	Reduced the frequency of some of the routine radiological surveys from weekly to monthly and removed the rollover from the list.

31	Minor	Removed the word “Acting” from the term “Acting RSO”
32.E	Minor	Changed: Radiation Safety Officer (RSO) to Corporate Radiation Safety Officer (CRSO).
39.E	Minor	Removed the 40 mrem/hr limit and replace it with the posting and dose limit requirements of a “Radiation Area” and a “High Radiation Area” that are found in EnergySolutions standard operating procedure CL-RS-PR-150 <i>Posting Requirements for Radiological Hazards</i> .
43.	Minor	Change condition to read: Construction of the clay liner for the Class A West (CAW) embankment between the Class A (CA) and Class A North (CAN) embankments, or receipt of waste volumes exceeding the total waste capacity of the CA and CAN embankments (minus the volumes generated during facility decommissioning) is prohibited until the Licensee funds the financial surety for decommissioning of the CAW embankment as designed and approved.
73.A. iii. and iv.	Minor	<p>Added:</p> <p>iii. Updates to the cost estimate for decommissioning the Class A West (CAW) embankment to ensure the cost estimate remains current in the event that the Director determines the Class A (CA) and Class A North (CAN) embankment must be closed as a single embankment using the approved design of the CAW embankment. The cost estimate must meet the requirements of License Condition 73.</p> <p>iv. Updates to cost estimate for decommissioning the CA and CAN embankments as separate embankments using the approved designs for each separate embankment. The surety shall be based on the approved cost estimate for the CA and CAN embankments until the Director determines it is no longer feasible for the CA and CAN embankments to be closed separately. At that time, the surety shall be based on the approved cost estimate provided for License Condition 73.A.iii. The update to the cost estimate for the CA and CAN embankments must include funding to move excess materials that have been placed outside of the approved CA design to the CAN embankment, as well as all other costs associated with closing the CA and CAN embankments separately. The cost estimate must meet the requirements of License Condition 73.</p>
73.B	Minor	Change: Contingency value from 11% to 15% based on R313-22-35-3(g) and NUREG 1757, Volume 3.
76	Minor	Deleted: parenthetical statement “but not including any part of that Account from returns on investment”
77	Minor	Removed the 40 mrem/hr limit and replace it with the posting and dose limit requirements of a “Radiation Area” and a “High Radiation Area” that are found in EnergySolutions standard operating procedure CL-RS-PR-150 <i>Posting Requirements for Radiological</i>

		<i>Hazards.</i>
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### **Explanation of Changes**

**License Condition 4:** In a letter dated October 25, 2012, EnergySolutions submitted an application to renew the company's radioactive materials license (RML). While the renewal application is being reviewed by the Division, the current RML is still active even though the expiration date is past. Therefore, adding the words "under timely renewal" indicates that the RML is going through the renewal process. This is considered a minor change for clarity.

**License Condition 22:** During the fourth quarter of 2012, EnergySolutions' Clive facility went through two reductions in work force. This means that several of the buildings/facilities that were once regularly used are not being used as often. In addition, the rollover located on the North rail spur was dismantled over the summer of 2013. In a letter dated August 22, 2013 (CD13-0238) EnergySolutions requested that the rollover facility be removed from the list of facilities requiring radiological survey because demolition activities had begun. In addition, EnergySolutions requested that weekly radiological surveys of buildings and facilities to only be required if a building or facility was in active operation. If the building or facility was not in active operation then the radiological survey would not be required.

The DRC reviewed the request and concluded that the rollover could be removed from License Condition 22. The DRC also agreed that the frequency of the routine radiological survey could be reduced in buildings/facilities that are not being used but the frequency would be reduced to monthly. The DRC also concluded that the buildings and facilities that the frequency of surveys was to be reduced needed to be specified in License Condition 22 and a definition as to what is considered operational and nonoperational status. These proposed changes to EnergySolutions request was discussed with EnergySolutions' representative in a meeting on September 4, 2013. EnergySolutions revised their amendment request in a letter dated September 19, 2013 (CD13-0255).

The Licensee suggested this change to License Condition 22 be considered a minor because it does not reduce any regulatory requirements. The DRC did not concur with the Licensee's reasoning because License Conditions may be put into RMLs as per R313-22-34(2) which states "The Director may incorporate in licenses at the time of issuance, additional requirements and conditions with respect to the licensee's receipt, possession, use and transfer of radioactive material subject to Rule R313-22 as he deems appropriate or necessary in order to:

- (a) minimize danger to public health and safety or the environment;
- (b) require reports and the keeping of records, and to provide for inspections of activities under the license as may be appropriate or necessary; and
- (c) prevent loss or theft of material subject to Rule R313-22."

Reducing the frequency of radiological surveys is a reduction in monitoring which was performed to minimize danger to public health and safety, and environmental requirements. Therefore, as per R313-17-2(1) this change qualifies as a major license amendment.

**License Condition 31:** In Amendment 15 (issued: May 2, 2013) the name of the RSO was changed due to the change of personnel at the site. The new RSO was named as an "acting" RSO. Since then

EnergySolutions has decided to make the change permanent and therefore has requested to remove the word “acting” from License Condition 31. This is a minor modification because the person mentioned as the RSO does not change.

**License Condition 32.E:** The change was originally requested by the Licensee as part of Amendment 15, but inadvertently did not get changed. The change from RSO to CRSO does not affect the purpose of the License Condition. Therefore, is considered a minor modification.

**License Condition 39.E:** In a letter (CD13-0238) dated August 22, 2013. EnergySolutions requested that the 40 mrem/hr limit be removed from the license condition and stated that the Clive facility’s radiation protection program is sufficient to protect occupational workers and members of the public. The DRC reviewed the request and proposed an alternative to the request in a meeting with an ES representative on September 4, 2013. The DRC proposed that the Licensee follow the criteria of EnergySolutions’ Clive Facility Radiation Protection Program Rev 7.

EnergySolutions revised their amendment request in a letter dated September 19, 2013, (CD13-0255). In their revised amendment request, EnergySolutions suggested the following language: “All packages in storage shall be managed in accordance with the most current version of CL-RS-PR-150, *Posting Requirements for Radiological Hazards*.” What this means is that if a package is being stored it will be posted depending on the radiological conditions of the area that the package is being stored in. An area that is posted as a “Radiation Area” will have to be within 4 mrem/hr to 79 mrem/hr. When radiological conditions are above 79 mrem/hr than the area has to be treated as a “High Radiation Area” as per the License’s Radiation Protection Program. In accordance with R313-12-2, “High radiation area” means an area, accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a dose equivalent in excess of one mSv (0.1 rem), in one hour at 30 centimeters from the source of radiation or from a surface that the radiation penetrates.

This does reduce an area dose limit requirement, making a variable limit versus a set limit. However the posting requirements at the EnergySolutions’ Clive facility are set at 20% lower than the equivalent regulatory requirement according to EnergySolutions Clive Facility’s Radiation Protection Program. Thus the change in the License Condition is still protective and allows the Licensee flexibility and consistency in implementing their radiation protection program. The DRC concluded that it is in determinant as to whether or not the change will cause an individual to receive a higher Total Effective Dose Equivalent (TEDE). Removal of the general area dose requirement does not necessarily mean an individual’s dose will go up. The Containerized Waste Facility has specific radiological work permits that maintain doses as low as reasonably achievable (ALARA), therefore doses to individuals who work in this area should not change by eliminating the area dose requirement. This change is considered a minor license amendment because its inconclusive as to whether or not the change will more than likely cause an individual to receive a higher total effective dose equivalent.

**License Condition 43:** Based on DRC’s review of the 2012 Surety update submitted December 1, 2012 and additional information provided in letter dated April 25, 2013 responding to DRC’s request for information letter dated March 6, 2013, the Director has decided to clarify language in License Condition 43. License Condition 43 currently states: “The Licensee shall, in the 2012 Surety submittal, provide cost estimates based on the Class A West design submitted on Drawings 10014 C01 through

C06 listed in Table 2C of the GWQDP. The Licensee shall provide surety funding as approved by the Director prior to commencing construction of the clay liner in the area between the previously approved Class A and Class A North embankments.”

The Public Participation Summary document dated November 14, 2012 provides responses to comments regarding surety funding of the Class A West facility. Specifically, the DRC told the public that the Licensee will be required to provide the design cost estimates in the upcoming 2012 surety submission

(See:<http://www.radiationcontrol.utah.gov/EnSolutions/docs/2012/Nov/Public%20Participation.pdf>).

Based on the fact that the cost estimates for Closure of the Class A West embankment were not provided in the 2012 surety submission, and the lack of information provided in the April 25, 2013 response letter to the DRC’s Request For Information letter, the Director has revised the language in Condition 43 to require the funds be provided either prior to clay liner construction between the two existing cells or receipt of waste volumes (minus the volumes generated during facility Decommissioning) exceed the total waste capacity of the Class A and Class A North embankments. Also, the DRC is revising Condition 73 in conjunction with Condition 43 to require the Licensee to annually provide cost estimates for both scenarios closure scenarios. This will help clarify the previous language the Licensee indicated they did not fully understand.

**License Condition 73.A iii and iv:** These two items are added for clarification purposes that outline what estimates are to be provided in the annual surety reports. Both closure scenarios must be provided as part of the annual reports submitted for DRC review. The update to the cost estimate for the CA and CAN embankments must include funding to move excess materials that have been placed outside of the approved CA design to the CAN embankment, as well as all other costs associated with closing the CA and CAN embankments separately.

**License Condition 73.B:** R313-22-35(3)(g) states “Applicants for a specific license authorizing the possession and use of radioactive materials in sufficient quantities that require financial assurance and recordkeeping for decommissioning under Section R313-22-35 shall assure that all documents submitted to the Director for the purpose of demonstrating compliance with financial assurance and recordkeeping requirements meet the applicable criteria contained in the Nuclear Regulatory Commission's document NUREG-1757, Volume 3, "Consolidated NMSS Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness" (9/2003).” NUREG-1757, Volume 3 Section 4.1 COST ESTIMATE (AS CONTAINED IN A DECOMMISSIONING FUNDING PLAN OR DECOMMISSIONING PLAN) under *Evaluation Criteria Applicable to All Cost Estimates for Unrestricted or Restricted Release* subsection (7) [pg.4-11] it states “The cost estimate applies a contingency factor of at least 25 percent to the sum of all estimated costs.” This change brings the surety for the EnergySolutions’ Clive facility into compliance with the State of Utah Rule.

Additionally, based on DRC’s review of the Surety submission, the Radioactive Material License, and Radiation Control Rules, License Condition 73.B requires inclusion of a contingency line item in the Surety Estimate, and sets the minimum value of the contingency at 11%. However, NUREG-1757 Vol. 3 (Consolidated NMSS Decommissioning Guidance Financial Assurance, Record keeping, and Timeliness) recommend establishing a 25% contingency, citing such a contingency as “reasonable assurance for unforeseen circumstances that could increase decommissioning costs.” From the NUREGs cited, it is clear that the contingency line item should be 25% of direct costs, and that the

contingency should never be below 15% of direct costs. The degree of uncertainty in nuclear waste disposal industry, limited number of qualified bidders, the remote location of Clive provide justification for at least the minimum of a 15% contingency. Furthermore, based on DRC's review of Utah Annotated Code (UAC) R313-22-35-3(g), the rule states; "Applicants for a specific license authorizing the possession and use of radioactive materials in sufficient quantities that require financial assurance and recordkeeping for decommissioning under Section R313-22-35 shall assure that all documents submitted to the Director for the purpose of demonstrating compliance with financial assurance and recordkeeping requirements meet the applicable criteria contained in the Nuclear Regulatory Commission's document NUREG-1757, Volume 3, "Consolidated NMSS Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness" (9/2003). Based on the requirement in R313-22-35-3(g) and NUREG criteria, the Director is revising License Condition 73.B In-direct costs "contingency" from 11% to the minimum of 15%.

**License Condition 76:** This license condition was added to the RML in Amendment #14 (issued; November 26, 2012) to incorporate perpetual care funding in the surety. In a letter dated July 18, 2007 (CD07-0236), EnergySolutions proposed that perpetual care funding be incorporated into the surety fund. This proposal explicitly contemplated credit for earnings on the cash perpetual fund balance. This reflects agreed upon practice since 2007, with the important exception of the parenthetical statement "... (but not including any part of that Account resulting from returns on investment) at the end of the condition. This parenthetical statement directly contradicts existing approved practices as documented by DRC annual approvals of surety updates since 2007. The DRC agrees with this assessment and concurs that the parenthetical statement "but not including any part of that Account from returns on investment" can be deleted from the condition. The DRC erred when adding the language in Amendment #14. Based on previous surety submittals and the 2007 letter, the DRC concurs with the Licensee that this parenthetical statement can be removed.

**License Condition 77:** In a letter (CD13-0238) dated August 22, 2013, EnergySolutions requested to remove this condition from the RML. EnergySolutions stated that the 40 mrem/hr limit in the license condition is unnecessary because the Clive facility's radiation protection program was sufficient to protect occupational workers and members of the public. The DRC reviewed the request and proposed an alternative to the request in a meeting with an ES representative on September 4, 2013. The DRC proposed that EnergySolutions follow the Clive Facility Radiation Protection Program Rev 7.

EnergySolutions revised their amendment request in a letter dated September 19, 2013, (CD13-0255). In their revised amendment request EnergySolutions suggested the following language: "[external gamma radiation levels shall] be managed in accordance with the most current version of CL-RS-PR-150, *Posting Requirements for Radiological Hazards*." What this means is that the CWF area will be posted and maintained depending on the radiological conditions of the area. An area that is posted as a "Radiation Area" will have to be within 4 mrem/hr to 79 mrem/hr. When radiological conditions are above 79 mrem/hr, the area has to be treated as a "High Radiation Area" in accordance with the License's Radiation Protection Program. In addition, see basis above regarding License Condition 39 E. for more information. This change is considered minor because its inconclusive as to whether or not the change will more than likely cause an individual to receive a higher total effective dose equivalent.